

MONSANTO Company

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product name

Roundup PRODry[™] Herbicide

EPA Reg. No.

524-505

Chemical name

Not applicable

Synonyms

Not applicable

Company

MONSANTO Company, 800 N. Lindbergh Blvd., St. Louis, MO, 63167

Telephone: 800-332-3111, **Fax:** 314-694-5557

Emergency numbers

FOR CHEMICAL EMERGENCY, SPILL LEAK, FIRE, EXPOSURE, OR ACCIDENT Call CHEMTREC - Day or Night: 1-800-424-9300 toll free in the continental U.S., Puerto Rico, Canada, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted).

FOR MEDICAL EMERGENCY - Day or Night: 314-694-4000 (collect calls accepted).

2. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient

Ammonium salt of N-(phosphonomethyl)glycine; { Ammonium salt of glyphosate }

Composition

COMPONENT	CAS No.	% by weight (approximate)
Ammonium salt of glyphosate	114370-14-8	71.4
Surfactant and minor formulating ingredients		28.6
Sodium sulphite	7757-83-7	<=0.5

Trade secret composition.

OSHA Status

This product is hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

Emergency overview

Appearance and odour (colour/form/odour): Tan - White / Granules / Mild

CAUTION!

HARMFUL IF SWALLOWED

CAUSES MODERATE EYE IRRITATION

Potential health effects

Likely routes of exposure

Skin contact, eye contact, inhalation

Eye contact, short term

Irritating to eyes.

Skin contact, short term

Not expected to produce significant adverse effects when recommended use instructions are followed.

Inhalation, short term

Not expected to produce significant adverse effects when recommended use instructions are followed.

Single ingestion

Harmful if swallowed.

Medical conditions aggravated by exposure

Hypersensitivity to sulphiting agents.

A very small percentage of particularly sensitive people may suffer skin or respiratory reactions.

Refer to section 11 for toxicological and section 12 for environmental information.

4. FIRST AID MEASURES

Eye contact

Immediately flush with plenty of water.

Continue for at least 15 minutes.

If there are persistent symptoms, obtain medical advice.

Ingestion

Immediately offer water to drink.

Do NOT induce vomiting unless directed by medical personnel.

Never give anything by mouth to an unconscious person.

If symptoms occur, get medical attention.

Advice to doctors

This product is not an inhibitor of cholinesterase.

Antidote

Treatment with atropine and oximes is not indicated.

5. FIRE FIGHTING MEASURES

Flash point

Not applicable.

Extinguishing media

Recommended: Water, dry chemical, foam, carbon dioxide (CO₂)

Unusual fire and explosion hazards

None.

Minimize use of water to prevent environmental contamination.

Environmental precautions: see section 6.

Hazardous products of combustion

Carbon monoxide (CO), phosphorus oxides (P_xO_y), nitrogen oxides (NO_x), ammonia (NH₃)

Fire fighting equipment

Self-contained breathing apparatus.

Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protection recommended in section 8.

Environmental precautions

SMALL QUANTITIES:

Low environmental hazard.

LARGE QUANTITIES:

Minimize spread.

Keep out of drains, sewers, ditches and water ways.

Methods for cleaning up

Dig up heavily contaminated soil.

Collect in containers for disposal.

Refer to section 7 for types of containers.

Flush spill area with water.

Minimize use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

Handling

Avoid contact with eyes.

When using do not eat, drink or smoke.

Wash hands thoroughly after handling or contact.

Thoroughly clean equipment after use.

Do not contaminate drains, sewers and water ways when disposing of equipment rinse water.

Emptied containers retain vapour and product residue.

Observe all labelled safeguards until container is cleaned, reconditioned or destroyed.

Storage

Compatible materials for storage: stainless steel, aluminium, fibreglass, plastic, glass lining

Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.

Keep out of reach of children.

Keep away from food, drink and animal feed.

Keep only in the original container.

Keep container dry.

Keep container off wet floors.

Keep container closed.

Minimum shelf life: 2 years.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits

Components	Exposure Guidelines
Ammonium salt of glyphosate	No specific occupational exposure limit has been established.
Surfactant and minor formulating ingredients	No specific occupational exposure limit has been established.
Sodium sulphite	No specific occupational exposure limit has been established.

Engineering controls

No special requirement when used as recommended.

Eye protection

If there is significant potential for contact:

Wear dust goggles.

Skin protection

If repeated or prolonged contact:

Wear chemical resistant gloves.

Respiratory protection

No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

9. PHYSICAL AND CHEMICAL PROPERTIES

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Colour/colour range:	Tan - White
Form:	Granules
Odour:	Mild
Flash point:	Not applicable.
pH:	4.2 - 5.8 15 g/l
Partition coefficient (log Pow):	0.00 (active ingredient)

10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions of handling and storage.

Hazardous decomposition

Thermal decomposition: Hazardous products of combustion: see section 5.

Materials to avoid/Reactivity

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

Data obtained on product and components are summarized below.

Acute oral toxicity

Rat, female, LD50: 3,794 mg/kg body weight

FIFRA category III.

Slightly toxic.

Acute dermal toxicity

Rat, LD50 (limit test): > 5,000 mg/kg body weight

Practically non-toxic.
FIFRA category IV.
No mortality.

Acute inhalation toxicity

Rat, LC50 (limit test), 4 hours, aerosol: > 2.6 mg/L

Practically non-toxic.
FIFRA category IV.

Skin irritation

Rabbit, 6 animals, OECD 404 test:

Days to heal: 7
Primary Irritation Index (PII): 1.6/8.0
FIFRA category IV.
Slight irritation.

Eye irritation

Rabbit, 6 animals, OECD 405 test:

Days to heal: 7
Slight irritation.
FIFRA category III.

Skin sensitization

Guinea pig, Buehler test:

Positive incidence: 0 %

N-(phosphonomethyl)glycine; {glyphosate}

Mutagenicity

In vitro and in vivo mutagenicity test(s):

Not mutagenic.

Repeated dose toxicity

Rabbit, dermal, 21 days:

NOAEL toxicity: > 5,000 mg/kg body weight/day
Target organs/systems : none
Other effects : none

Rat, oral, 3 months:

NOAEL toxicity: > 20,000 mg/kg diet
Target organs/systems : none
Other effects : none

Carcinogenicity

Mouse, oral, 24 months:

NOEL tumour: > 30,000 mg/kg diet
NOAEL toxicity: ~ 5,000 mg/kg diet
Tumours: none
Target organs/systems : liver
Other effects: decrease of body weight gain, histopathologic effects

Rat, oral, 24 months:

NOEL tumour: > 20,000 mg/kg diet
NOAEL toxicity: ~ 8,000 mg/kg diet
Tumours: none
Target organs/systems : eyes
Other effects: decrease of body weight gain, histopathologic effects

Toxicity to reproduction/fertility

Rat, oral, 3 generations:

NOAEL toxicity: > 30 mg/kg body weight
NOAEL reproduction: > 30 mg/kg body weight
Target organs/systems in parents: none
Other effects in parents: none

Target organs/systems in pups: none

Other effects in pups: none

Developmental toxicity/teratogenicity

Rat, oral, 6 - 19 days of gestation:

NOAEL toxicity: 1,000 mg/kg body weight

NOAEL development: 1,000 mg/kg body weight

Other effects in mother animal: decrease of body weight gain, decrease of survival

Developmental effects: weight loss, post-implantation loss, delayed ossification

Effects on offspring only observed with maternal toxicity.

Rabbit, oral, 6 - 27 days of gestation:

NOAEL toxicity: 175 mg/kg body weight

NOAEL development: 175 mg/kg body weight

Target organs/systems in mother animal: none

Other effects in mother animal: decrease of survival

Developmental effects: none

Sodium sulphite

EXPERIENCE WITH HUMAN EXPOSURE

Eye contact, excessive, occupational:

Eye effects: irritation

Skin contact, excessive, occupational:

Skin effects: irritation, sensitization in susceptible individuals

Inhalation, excessive, occupational:

Respiratory effects: respiratory sensitization, irritation, asthma

Ingestion, short term, case report(s):

Gastro-intestinal effects: irritation

Ingestion, excessive, case report(s):

Gastro-intestinal effects: diarrhea, abdominal pain

Cardiovascular effects: decreased blood pressure (hypotension)

12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Similar formulation

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Acute oral toxicity, LD50: 1,651 mg/kg body weight

Slightly toxic.

Arthropod toxicity

Honey bee (*Apis mellifera*):

Oral/contact, 48 hours, LD50: > 100 µg/bee

Practically non-toxic.

Soil organism toxicity, invertebrates

Earthworm (*Eisenia foetida*):

Acute toxicity, 14 days, LC50: > 1,250 mg/kg dry soil

Practically non-toxic.

Soil organism toxicity, microorganisms

Nitrogen and carbon transformation test:

12.7 kg/ha, 28 days: Less than 25% effect on nitrogen or carbon transformation processes in soil.

N-(phosphonomethyl)glycine; {glyphosate}

Bioaccumulation

Bluegill sunfish (*Lepomis macrochirus*):

Whole fish: BCF: < 1

No significant bioaccumulation is expected.

Dissipation

Soil, field:

Half life: 2 - 174 days

Koc: 884 - 60,000 L/kg

Adsorbs strongly to soil.

Water, aerobic:

Half life: < 7 days

13. DISPOSAL CONSIDERATIONS

Product

Not classified as hazardous waste by the Resource, Conservation and Recovery Act (RCRA), 40 CFR 261.

Recycle if appropriate facilities/equipment available.

Bury in approved landfill.

Consult your attorney or appropriate regulatory officials for information on disposal.

Container

Empty packaging completely.

Ensure packaging cannot be reused.

Recycle if appropriate facilities/equipment available.

Burn in proper incinerator.

Dispose of as non hazardous industrial waste.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

Not hazardous under the applicable DOT, ICAO/IATA, IMO, TDG and Mexican regulations.

15. REGULATORY INFORMATION

TSCA Inventory

All components are on the US EPA's TSCA Inventory

OSHA Hazardous Components

Surfactant

SARA Title III Rules

Section 311/312 Hazard Categories

Immediate

Section 302 Extremely Hazardous Substances

Not applicable.

Section 313 Toxic Chemical(s)

Not applicable.

CERCLA Reportable quantity

16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national regulations.

Please consult supplier if further information is needed.

Follow all local/regional/national regulations.

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

For more information refer to product label.

Please consult Monsanto if further information is needed.

In this document the British spelling was applied.

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

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